0043678 9304L213-WES-H3T



ROY F. WESTON, INC. LIONVILLE ANALYTICAL LABORATORY ANALYTICAL CASE NARRATIVE



Client: WESTINGHOUSE HANFORD

CHERT: WESTINGHOUSE HARPORD

RFW#: 9304L213

W.O. #: 06168-002-001-9999-00

Date Received: 04-15-93

INORGANIC

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

- 1. All sample holding times as required by 40CFR136 were met.
- 2. All preparation blank results were below the required detection limits.
- 3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
- 4. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.
- 5. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.
- 6. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Method for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), Standard Methods for the Examination of Water and Wastewater 16 ed. and Test Methods for Evaluating Solid Waste (USEPA SW846).

J. Peter/Hershey, Ph.D./
Laboratory Manager
Lionville Analytical Laboratory

mmz/i04-213

Laboratory Manager

Lionville Analytical Laboratory

DON'T SAY IT --- Write It!

DATE: February 8, 1994

TO: 9304L213-WES-1131

FROM: Pat Reich

H4-19

Telephone: 372-2785

CC:

Final Summay SUBJECT: DATA VALIDATION REPORT FOR THE 100-IU-4 SODIUM DICHROMATE ERA INV.

THE VALIDATION REPORT FOR THIS DATA PACKAGE IS FILED IN B01971-TMA-454.

PAT REICH FILE CLERK

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/21/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9304L213

WORK	ORDER:	06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
======			======		========
-001	BO19B0	% Solids	89.2	8	0.10
		Chromium VI	0.11 u	MG/KG	0.11

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Westinghouse **Hanford Company**

CHAIN OF CUSTODY

2004145

Custody Form InitiatorS.M.STEELE / L. C. r. 16 EC;

Company Contact R.C.SMITH/C.E.HEIDEN

Telephone 509-376-2640

Project Designation/Sampling Locations SAF#93-045, ERA, SODIUM DICHROMATE SITE

Collection Date 4/13/93

Ice Chest No. SML 45

Field Logbook No. WHC-N-205-22

Bill of Lading/Airbill No. 2536954948

Offsite Property No. W/A

Method of Shipment AIR EXPRESS OVERNIGHT

Shipped to R.F. WESTON LABS, LIONVILLE PA.

Possible Sample Hazards/RemarksHAZARDS UNKNOWN, PRIORITY TURNAROUND, RCRA PROTOCOL, SEE SAMPLE ANALYSIS REQUEST FOR INDIVIDUAL BOTTLES AND ANALYSIS.

Sample Identification

B019B0 (3) BOTTLES

Man 4-14-93

PRIORITY TURNAROUND

[] Field Transfer of Cu	stody	Chain of Po	ossession	(Sign and P	rint Names)
Relinquished By Mulan & Lyger 3.4 34	Date 4-14-93	Time 0900	Received By	Date	Time
Emerey -	4115/93	1125	Susan Perso	41.15/93	1125
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Comments:

Westingh Hanford C	ouse Compan	у		SAMPLE ANALYSIS REQUEST
	S.M.S		TH/C.E.HEIDE	Date 4-13-93 EN Telephone (509) 376-2640
Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B019B0	S	4/13/93	1035	250 ml g /Chromium VI SW-846 7197
				250 ml g/ICP,GFAA Metals,inc.Total Chrome CLP
				1000 ml p/ Gamma Spec. PRO-042-5
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Type ofS	ample	A = Air DL = Dru DS = Dru	· ·	L = Liquid SE = Sediment
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PRIORITY TURNAROUND

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ROY F. WESTON, INC. LIONVILLE ANALYTICAL LABORATORY ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD

W.O. #: 06168-002-001-9999-00

RFW #: 9304L213

Date Received: 04-15-93

CLP METALS

- 1. This narrative covers the analysis of (1) soil sample.
- 2. The samples were prepared and analyzed in accordance with the following protocols: CLP SOW 3/90.
- 3. ICVs, CCVs, and LCSs stock standards were purchased form Inorganic Ventures Laboratory.
- 4. All analyses were performed within the required holding times.
- 5. All Initial and Continuing Calibration Verifications (ICV/CCV's) were within control limits.
- 6. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.
- 7. All Preparation/Method Blanks were below Reporting Limits.
- 8. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.
- 9. All Laboratory Control Samples (LCS) were within the 80-120% control limits.
- 10. All Serial Dilution percent differences were within <u>USEPA SOW</u> control limits except for:

RFW # Element %Difference 91.9

11. All Matrix Spike recoveries were within the 75-125% control limits (exception allowed when sample concentration exceeds the spike added concentration by a factor of 4 or more) except for:

RFW # Element %Recovery 64.4



A Post-Matrix Spike analysis was performed for those ICP elements that did not meet the specified control limits (exception allowed for Ag).

Matrix spike analyses are not required for Ca, Mg, Na, K, Al and Fe in soils.

- 12. All Duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits for samples values greater than 5X Reporting Limit, or +/- the Reporting Limits for sample values less than 5X Reporting Limit.
- 13. Method of Standard Additions (MSA) analyses were performed on the following samples:

Element

Sample #'s 001,001R

- Lead 00
- 14. ICP Interelement Correction Factors for IC1 and IC3 are included in this package, but do not appear on EDD.
- 15. The graphite furnace time that appears on form XIV is the time of the first injection. The time that appears on the data is the print time.

Raymond A. Siery Inorganic Section Manager

Lionville Analytical Laboratory

4.29.93

Date



ROY F. WESTON, INC. LIONVILLE ANALYTICAL LABORATORY ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD

RFW #: 9304L213

W.O. #: 06168-002-001-9999-00

Date Received: 04-15-93

CLP METALS ADDENDUM

- 1. Following Exhibit E, Section V, Item 10, page E-23 of the USEPA Statement of Work for Inorganics Analysis, Document Number ILM02.0 ICP Instrument Detection Limits (IDLs) are reported for two (2) ICP instruments. The instrument identification numbers are "IC1" and "IC3". The highest IDL for the two instruments is used for reporting concentration values in this sample data package.
- 2. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM02.0, Exhibit E, Section V, Item 6, page E-20) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.

Raymond & Siery

Inorganic Section Manager

Lionville Analytical Laboratory

29.93

Date

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/27/93

CLIENT: WESTINGHOUSE HANFORD WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9304L213

					REPORTING
SITE ID	ANALYTE	RESUL	ľ	UNITS	LIMIT
*************		****	===		========
BO19B0	Silver, Total	2.2	u	MG/KG	2.2
	Aluminum, Total	7530		MG/KG	44.8
	Arsenic, Total	2.2	u	MG/KG	2.2
	Barium, Total	82.3	•	MG/KG	44.8
	Beryllium, Total	1.1	u	MG/KG	1.1
	Calcium, Total	4030		MG/KG	1120
	Cadmium, Total	1.1	u	,	1.1.
	Cobalt, Total	11.4		MG/KG	11.2
	Chromium, Total	32.3		MG/KG	2.2
	Copper, Total	11.8		MG/KG	5.6
•	Iron, Total	20200		MG/KG	22.4
	Potassium, Total	2120		MG/KG	1120
	Magnesium, Total	4730		MG/KG	1120
	Manganese, Total	335		MG/KG	3.4
	Sodium, Total	1120	u	MG/KG	1120
	Nickel, Total	13.7		MG/KG	9.0
	Lead, Total	5.0		MG/KG	0.67
	Antimony, Total	13.5	u	MG/KG	13.5
	Selenium, Total	1.1	u	MG/KG	1.1
	Thallium, Total	2.2	u	MG/KG	2.2
	Vanadium, Total	34.4		MG/KG	11.2
	Zinc, Total	46.0		MG/KG	4.5
	B019B0	BO19BO Silver, Total Aluminum, Total Arsenic, Total Barium, Total Beryllium, Total Calcium, Total Cadmium, Total Cobalt, Total Chromium, Total Copper, Total Iron, Total Potassium, Total Magnesium, Total Manganese, Total Sodium, Total Nickel, Total Lead, Total Antimony, Total Selenium, Total Thallium, Total Vanadium, Total	BO19BO Silver, Total 2.2 Aluminum, Total 7530 Arsenic, Total 2.2 Barium, Total 82.3 Beryllium, Total 1.1 Calcium, Total 4030 Cadmium, Total 1.1 Cobalt, Total 1.4 Chromium, Total 32.3 Copper, Total 11.8 Iron, Total 20200 Potassium, Total 2120 Magnesium, Total 335 Sodium, Total 335 Sodium, Total 120 Nickel, Total 13.7 Lead, Total 5.0 Antimony, Total 13.5 Selenium, Total 1.1 Thallium, Total 2.2 Vanadium, Total 34.4	BO19BO Silver, Total 2.2 u Aluminum, Total 7530 Arsenic, Total 2.2 u Barium, Total 82.3 Beryllium, Total 1.1 u Calcium, Total 4030 Cadmium, Total 1.1 u Cobalt, Total 1.1 u Cobalt, Total 1.1 u Cobalt, Total 1.1 u Copper, Total	Bol9BO Silver, Total 2.2 u Mg/KG Aluminum, Total 7530 Mg/KG Arsenic, Total 2.2 u Mg/KG Barium, Total 82.3 Mg/KG Beryllium, Total 1.1 u Mg/KG Calcium, Total 4030 Mg/KG Cadmium, Total 1.1 u Mg/KG Cadmium, Total 1.1 u Mg/KG Cobalt, Total 11.4 Mg/KG Chromium, Total 32.3 Mg/KG Copper, Total 11.8 Mg/KG Copper, Total 11.8 Mg/KG Iron, Total 20200 Mg/KG Mg/KG Magnesium, Total 2120 Mg/KG Mg/KG Magnesium, Total 4730 Mg/KG Mg/KG Manganese, Total 335 Mg/KG Mg/KG Manganese, Total 1120 u Mg/KG Nickel, Total 13.7 Mg/KG Nickel, Total 13.7 Mg/KG Antimony, Total 13.5 u Mg/KG Selenium, Total 13.5 u Mg/KG Selenium, Total 1.1 u Mg/KG Thallium, Total 1.1 u Mg/KG Vanadium, Total 34.4 Mg/KG Vanadium, Total Mg/KG Vanadium, Total Mg/KG Vanadium

U.S. EPA - CLP

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

BO19B0

Lab Code: WESTON Case No.: WEST SAS No.:

SDG No.: CLP213

Matrix (soil/water): SOIL

Lab Sample ID: 930421301

Level (low/med): LOW

Date Received: 4/15/93

% Solids:

89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	M
7429-90-5	Aluminum	7530.00			P
7440-36-0	Antimony	8.97	ש		P
7440-38-2	Arsenic	1.30	B		F
7440-39-3	Barium	82.30	-		P
7440-41-7	Beryllium	.47	В		P
7440-43-9	Cadmium	1.12	U		₽
7440-70-2	Calcium	4030.00			P
7440-47-3	Chromium	32.30			P
7440-48-4	Cobalt	11.40			P
7440-50-8	Copper	11.80			P
7439-89-6	Iron	20200.00			P
7439-92-1	Lead	5.00		NS	F
7439-95-4	Magnesium				P
7439-96-5	Manganese	335.00	1		P
7439-97-6	Mercury				NR
7440-02-0	Nickel	13.70			P
7440-09-7	Potassium	2120.00			P
7782-49-2	Selenium	.45	שו	W	F
7440-22-4	Silver	2.02	ิบั		P
7440-23-5	Sodium	169.00	В		P
7440-28-0	Thallium	1.12	U		F
7440-62-2	Vanadium	34.40			₽
7440-66-6	Zinc	46.00		E	P
	Cyanide		Ι.		NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

03/90

ROY F. WESTON INC.

14194

INORGANIC DATA SUMMARY REPORT 04/21/93

CLIENT: WESTINGHOUSE HANFORD

WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9304L213

					REPORTING
Sample	SITE ID	ANALYTE	RESULT	UNITS	LIMIT
RESERVE			======= ₇		========
-001	BO19B0	% Solids	89.2	•	0.10
		Chromium VI	0.11 /u:	mg/kg	0.11

DO 101 600 11

U.S. EPA - CLP

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

BO19B0

Lab Code: WESTON

Case No.: WEST SAS No.:

SDG No.: CLP213

Matrix (soil/water): SOIL

Lab Sample ID: 930421301

Level (low/med): LOW

Date Received: 4/15/93

% Solids:

89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No. Analyte Concentration C Q M 7429-90-5
7440-36-0 Antimony Arsenic Barium Beryllium Cadmium Calcium Calcium Cobalt Copper Copper

1/5/94 P1/2

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts:

Comments:

FORM I - IN

03/90